An Overview of the Origin and Development of CDF

Written by:

Mark V. Thornton
Consulting Historian

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The California Department of Forestry and Fire Protection
Archaeology Office
P.O. Box 944246
Sacramento, California 94244-2460
(916) 653-0839

CDF Editorial Note: *This excellent summary and overview of CDF's history was written by Mark V. Thornton and included as an introductory chapter within his comprehensive, two-volume report entitled "A Survey and Historic Significance Evaluation of the CDF Building Inventory," December, 1994, published as Number 17 in the CDF Archaeological Reports series. This overview appears as pages 7-31 of that report. It is, in part, a distillation of several of the writings of C. Raymond Clar, and was intended to provide the historical context for Mark's statewide inventory and evaluation of CDF's pre-1946 building collection he completed in 1994 working under a contract to CDF. Since that 963-page, two-volume report is now out-of-print and rather hard to find (although copies are available for purchase through Coyote Press), the historical overview was reproduced in this format to make it more widely available to CDF staff and to interested members of the public. For this project, Mark's original article was scanned and we made some minor reformatting changes and corrected some typographic errors.*

CDF Contextual History

The California Department of Forestry and Fire Protection (CDF) is a state agency responsible for protecting natural resources from fire on land designated by the State Board of Forestry as "State Responsibility Area" (SRA). CDF also manages the State Forest system and has authority over the laws governing forestry practices on private lands. The story of the origin and development of the CDF is a complex and lengthy tale that would be difficult to compress into one book let alone a single chapter. The history offered herein is intended to give only a summary overview. Much of the CDF information in this overview is a distillation of several of the writings of C. Raymond Clar. In fact, his two volume series, *California Government and Forestry: from Spanish days to 1927* and *California Government and Forestry – II: during the Young and Rolph administrations* represent the definitive chronicle of the CDF's administrative history. Collectively these books document the birth and growth of the CDF through the mid-1940s. Unfortunately, no book of equal stature has been written to continue the narrative down to the present day. For this report, though, Clar's books are sufficient for understanding much about the pre-1946 CDF building collection.

To fully appreciate how the CDF came to be, we must go back nearly 150 years. At that time America was still very much a wide open, sparsely settled land of seemingly infinite resources. Western expansion into the "frontier" had become a national passion. The discovery of gold in California accelerated this western movement on an unprecedented scale. The Civil War underscored a need for a transcontinental railroad which soon became a reality. In fact, the railroads played a significant if not singular role in opening up the west. They also brought the Nation's enormous storehouses of timber within reach of the logger and within reach of the retailer of lumber products.

The North American continent was blessed with an impressively large and diverse forest cover. For the American settlers, the trees were generally regarded as either a nuisance or commodity. Whatever means that could be employed to remove or market them was deemed appropriate. Never before, perhaps in history, has such a rapidly expanding population spread so fast and so far into "wilderness" areas as the people of the United States did during the 19th century. Of course they were not the first to enter these regions but the "Native Americans" generally lived within the constraints of the natural environment, at least they did not "merchandise" the land and its resources in the same fashion the American settlers were.

It was, and is, this interaction between the United States citizenry and the natural world around them that led to the founding of a wildland fire protection organization. It also forced the associated issue of forestry management. The North American continent, as does the world as a whole, has a "fire regime." For America the rule is a frequent fire regime, occurring every year. In any given year fire intensity (potential destructiveness) can range from moderate to severe for much of the Nation. This is a continent covered with inflammable grass, brush, deciduous and evergreen trees. This vegetation is subjected to annual warming and drying periods. The practice of 19th century settlers was often to set the land on fire when conditions were right to rid the area of trees so that agricultural crops could then be planted. For the logger, the method of operation was to cut the merchantable timber without regard to collateral damage. The slash (tops and branches) was either indiscriminately burned or left to accumulate in dangerous proportions.

These practices created a volatile mix of dead and dying vegetation, and thick stands of regrowth timber. The synchronicity of this coupled with the continued reckless use of burning the landscape led to catastrophic fires in the 1870s and 1880s. Newspaper accounts of the tragic loss of human life from these fires and the many stories of colossal devastation of timbered areas by homesteading and logging engendered debates on how to control or stop these activities. The prevalent idea that at least one-fifth of the land area should be covered in trees to sustain a successful agricultural industry added weight to the deliberations. And, a widely circulated belief that America might face a timber famine gave momentum to the dialogue. Many also believed that trees caused it to rain and by removing them the Nation ran the risk of converting its western territories, if not the whole country, into a vast desert. Also, the prevailing attitude that the forests of America were infinite, and infinitely forgiving of mankind's exploits, was waning now that Americans had reached the western shore.

Actually, arguments about private exploitation of the "public domain" had been a long standing issue. The consensus had been, though, that the government should only be a benign custodian awaiting the settlers' arrival to put the land into "productive" use. Legislation to expedite the

transference of the public lands into private ownership reached their zenith with the Homestead Act of 1862. It might be described as the single largest real estate title transfer in history; it certainly defined the phrase "land-office business." But there was a growing contingent of Americans who felt that some public lands should be retained permanently by the Federal Government for the benefit of all Americans, present and future. A parallel idea was also emerging that regulations needed to be enacted that controlled the use of natural resources, particularly timber resources. Advocates wanted a Federal system in-place that would guarantee that trees would continue to grow across the American landscape serving the needs of current and future generations.

At this point our story actually involves two significant trends in American history. One trend was the effort to "preserve" the Nation's natural wonders from privatization. The other was to "conserve" the Nation's storehouse of lumber trees. The first could be said to have started in 1864 when the United States Government gifted the Yosemite Grant and Mariposa Grove to the State of California. In 1866, the California State Legislature accepted this land grant with the understanding that the areas were to be managed for the benefit of present and future generations. Although it was a state park, these two grants signaled the beginning of a federal park program. The advent of a true national park system came with the creation of Yellowstone National Park in 1872.

The United States Army was assigned the responsibility to patrol and protect this area. The Army's role included the detection and suppression of wildfire within park boundaries. This was no small task considering the size of the sanctuary, the crude equipment at hand, and the few troops that were assigned. Even though the Army Calvary was a far cry from the wildland fire profession of today, they nonetheless represented the beginning of a Federal wildland fire protection program. One noteworthy Army idea was the creation of "campgrounds." These were setup as a means to contain the continuing nuisance of abandoned campfires. In 1890, the Sequoia and General Grant Parks, and the Yosemite Forest Preserve were created. The U.S. Army's qualified success in Yellowstone led to the implementation of Calvary patrols within these parks in 1891.

As for forestry management, simple laws to protect certain types of trees had been around since colonial times. The creation of the Department of Agriculture in 1862 marks the beginnings of a national effort to protect the nation's agricultural health. It wasn't until 1875, though, that Congress allocated $2,000 to the Department for the purpose of hiring a forestry agent to investigate the subject of timber management. Not that bad, since the discipline of forestry was new and there were very few trained foresters in America at this time. In 1881, a Division of Forestry was created and in 1889, the Department of Agriculture was raised to Cabinet level status. Meanwhile, all Federal land remained under the control of the Department of Interior, specifically the General Land Office (GLO).

Bernhard Fernow, Division of Forestry Chief from 1886 to 1898, endorsed the creation of forest reserves and pointed out the need to transfer control of these lands from the General Land Office to the Department of Agriculture. This would insure that government foresters would have the leverage needed to enforce proper timber management practices. Fernow even drafted an organizational scheme which included the idea that "rangers" would be in charge of the smallest administrative units. But Fernow ran into fierce opposition. While the logging industry,

homesteaders, and others fought the creation of the reserves, the Department of the Interior stood firm in resisting any efforts to transfer GLO territories to the Department of Agriculture.

Part of the impasse was broken in 1891 when Congress passed the Forest Reserve Act. The President now had the authorization to permanently withdraw from the public domain, forest lands he deemed of national importance. The Act did not, however, specify what constituted "forest" land. The people of Southern California capitalized on this by successfully lobbying for the creation of the San Gabriel Forest Reserve, a largely brush covered region whose value lie in its being an important watershed for the Los Angeles Basin. Southern Californians had long been witness to the devastation that wildland fire could bring. They had seen how hillsides denuded by fall fires became a catalyst for flooding and mud-slides when winter rains hit. This, in turn, wrecked havoc on the agricultural lands in the Basin below. The Sundry Civil Appropriations Act (Organic Act) of 1897 clarified the intent of the Forest Reserve Act and specifically endorsed the validity of watershed protection. In fact, timber and watershed protection were the cornerstones upon which existing reserves were expanded and future reserves established.

Gifford Pinchot is viewed as the "father" of the Forest Service. He served as Chief Forester from 1898 to 1910. His close friendship with President Theodore Roosevelt undoubtedly played a key role in the latter's executive order, of early 1905, which transferred the growing collection of Forest Reserves from the Interior Department to the Department of Agriculture. Had he been so inclined Pinchot probably could have gained control of the federal park lands. But Pinchot was a forester intent on instituting wise management upon timber producing lands for commercial use. He was not out to cultivate trees for recreational enjoyment (utilitarian conservation as opposed to aesthetic preservation). Within a few weeks of Roosevelt's order, Pinchot reorganized the Agriculture Department's Bureau of Forestry into the United States Forest Service. In 1907, the Forest Reserves were renamed National Forests.

The Forest Service would be the Nation's instrument to implement a timber management plan. Pinchot's philosophy of total exclusion of all fires (except for slash disposal) necessitated the creation of an effective prevention, detection, and suppression organization. However, with meager budgets the Forest Service would be severely restricted in the building of a physical plan to carry out its mission. Nonetheless, the construction of California's first two permanent Forest fire lookout stations took place in 1908. This marked the beginning of an active Federal wildland fire fighting effort on the California National Forests.

In 1910, Chief Forester Henry S. Graves, successor to Pinchot, wrote:

> The mere fact that a tract is carefully watched makes it safer, because campers, hunters, and others crossing it are less careless on that account. By an efficient supervision most of the unnecessary fires can be prevented, such as those arising from carelessness in clearing land, leaving camp fires, and smoking; from improperly equipped sawmills, locomotives, donkey engines, etc.
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> One of the fundamental principles in fire protection is to detect and attack fires in their incipiency. In an unwatched forest a fire may burn for a long time and gain great headway before being discovered. In a forest under proper protection there is some one

> man or corps of men responsible for detecting fires and for attacking them before they have time to do much damage or to develop beyond control.[1]

The management of the National Forest system was divided up among District Foresters. The California District (District 5, later Region 5) was headed by Coert duBois. In 1910, duBois worked out the Nation's first fire plan, using the Stanislaus National Forest as a model. The following year, all of California's National Forests had fire plans. An element of these plans was the designation of key mountain tops as permanent lookout points. (The concept of "primary" fire lookouts had been introduced in 1909.) Another significant element of duBois' plan was the codification of the recording of fire statistics. From this information would grow a better understanding of where and why fires occurred.

In 1914, duBois presented his report, *Systematic Fire Protection In The California Forests*. The document represents the first comprehensive, analytical approach to the wildland fire control problem. His treatise laid the foundation upon which subsequent fire policies have been built, and it placed California (i.e. the Forest Service in California) at the forefront of the developing National fire control organization. Of particular interest to this history was the fact that duBois' manual also discussed types of buildings considered appropriate for carrying out a fire protection program. In 1917 duBois published plans and specifications for fire lookouts, crew quarters, ranger's dwellings, offices, barns, and warehouses among other building types. With this circular, duBois had established the concept of "standardized" plans for district-wide (i.e. within California) use.

From 1910 onward the Forest Service made great strides in the building of an infrastructure capable of carrying out both a timber management and a wildland fire control program. In 1917, duBois reported that during 1916 the Forest Service had constructed 227 miles of new road, 1,975 miles of trails, 2,124 miles of telephone lines, 89 miles of fire lines, 81 lookout structures, 40 bridges, 222 miles of fencing, 17 corrals and 202 water improvements. In addition to this, 545 dwellings, barns and other structures had been erected. In California the protection of the Nation's natural resources was becoming a reality. It must be clarified, though, that lands lying outside of Federal ownership were still receiving little in the way of wildland fire protection. At this point in our story we shall direct our attention away from Federal activities and toward State level actions.

In the midst of the national debate over the merits of having a Federal forest reserve system, the California State Legislator had established a State Board of Forestry. Founded in 1885, the Board was one of the first state appointed forestry boards in America. They were authorized to investigate, collect, and disseminate information about forestry. In 1887, the Board members and their assistants were given the power of peace officers to enforce compliance with the few laws that the State had enacted concerning brush and forest lands. A State-level interest in the well-being of its natural resources had materialized. But a hostile political climate eventually succeeded in abolishing the State's first Board of Forestry. The two nurseries that had been established by the Board were transferred to the authority of the State University in 1893. The first chapter had come to a close but in ten years chapter two would begin.

At the beginning of the 20th century a few loosely organized groups, and at least one logging company had taken steps to bring about wildland fire protection upon a few scattered properties outside of the Federal reserves. In fact the Diamond Match Company may very well have

established the first permanent fire lookout station in California when, in 1904, the logging firm erected a building upon Bald Mountain in Butte County. But a more significant event had occurred in the previous year. In 1903 George Pardee was elected Governor. Shortly after assuming office he communicated to Gifford Pinchot his desire for a joint Federal-State study and survey of the forest situation in California. C. Raymond Clar, in his report *Brief History of The California Division of Forestry* suggests that Pardee's request energized Pinchot's lobbying efforts for direct control of the federal forest reserve system and no doubt it helped sway President Roosevelt to transfer the federal reserves to the Department of Agriculture.[2] The California survey was conducted from 1903 into 1907. Commencement of the project set the stage for the establishment of a new Board of Forestry and the creation of the position of State Forester. On March 18, 1905 the State Legislature approved both. The enabling Act, as Clar puts it, became "...the statutory cornerstone for the State forestry agency as it has existed through the ensuing years."[3]

The Board of Forestry appointed E. T. Allen, an Assistant Forester in the Forest Service, as California's first State Forester. Unfortunately, Allen had to leave office the following year (for personal reasons). His position, not surprisingly, was filled by another Forest Service employee, Gerard B. Lull. After all, the Federal Agency was practically the only source for qualified foresters. In passing, it might be mentioned that 1906 was also the year that the State Legislature returned the Yosemite Grant and Mariposa Grove to the Federal Government. And, while touching upon the subject of parks, the Act of 1905 had placed the State's Big Basin Park in Santa Cruz County under the authority of the Board of Forestry. The State's park system remained under the jurisdiction of the Board until 1927.

Clar also wrote that the Act of 1905 granted to the State Forester the right to appoint local firewardens. The State Forester could also "maintain a fire patrol at places and times of fire emergency. This was all right except that the County [in which the action took place] was obliged to pick up the check."[4] In his book, *California Government and Forestry: from Spanish days to 1927* Clar records that State Forester Lull "reported that in 1906 there had been a total of 367 firewardens appointed, of which 128 were employed by the Forest Service, 103 received pay for actual service from their county of residence, 136 were volunteers." Clar adds, "Volunteers and Federal employees were actually out of pocket for their loyal service, at least to the extent of a half dollar required to pay for their oath of office."[5] Clar quotes a few salient remarks from Lull regarding this firewarden system:

> It cannot be gainsaid that the conditions under which the State offers "cooperation" (which is a misnomer, for there is actually no cooperation, since the State retains all authority, but accepts no responsibility) leave abundant room for objection, if personal or political reasons prompt the supervisors to make them.
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> Where fire wardens are appointed at the request of supervisors, absolutely no organization is secured... The State Forester has absolutely no control over either system... If a fire occurs in a grain field or pasture, vigorous efforts are usually made to check it. This is no advance, however, for property owners did this before the office of fire warden was created. If chaparral on a watershed is burning little attention is paid to it, for few understand its importance.

* * *

> To sum it up, county cooperation is about the weakest possible excuse that can be conceived for an organization in any way capable of securing immunity from fires. Any attempt on the part of the State to urge county officials to greater efforts immediately strengthens their aroused suspicions that the State wants more money from fines.[6]

Clar comments that "Law enforcement under the warden system was pretty much a failure. The warden usually arrived late at a fire and thereafter had his own affairs to attend. Local magistrates were rarely enthusiastic about prosecuting fire cases when they were brought to court. The destination of fine money into the State fund was no special inducement for local enthusiasm." Lull and others wanted "full-time, salaried patrolman distributed over the State at the discretion of the State Forester."[7] As for the hiring of firefighters, Clar makes an interesting observation:

> During the summer of 1906 there had been considerable public discussion in which a forest reserve in the Inner Coast Range was endorsed and opposed. This proposed Stony Creek Reserve was being examined by the Forest Service at the time. Since the State Forester was the logical contracting agent he took over the job of maintaining a crew of six men to prevent and suppress fires during that summer. The cost was paid by the counties of Colusa and Glenn and by the Stockmen's Defense Association. Very little has been recorded regarding these patrolmen. That is unfortunate because they certainly constituted the first organized forest fire protection force to be gathered and supervised by any State forestry agency, except possibly for a workman or two around Big Basin.[8]

For the next decade little headway was made in building a forestry department.

In 1917, the State Legislature authorized the establishment of a forest nursery. In 1919 a bill was introduced to purchase land for the nursery but failed. Meanwhile, the State Highway Commission had become an enthusiastic supporter of a state forestry nursery. They, and many members of the general public, wanted to use the planting stock to beautify public land including roadsides. In 1920 the Commission and the State Board of Forestry agreed to a cooperative venture to establish a nursery. The State Highway Commission had the resources and authority to purchase a tract of land and thus acquired thirty acres in Yolo County near Davis for a nursery site. In 1921 the State Legislature appropriated $20,000.00 to the Board of Forestry for building construction upon this land. Clar reports that "The State engineer made plans for two residence and necessary work buildings in a colonial design."[9]

World War I placed a premium on grain and lumber products as the destruction in Europe mounted. It also heightened concerns about both the availability and security of American resources. In 1919 Governor Stephens signed into law a bill that reorganized the "forestry agency." Clar adds, "Provision was made for administrative districts, rangers, equipment, securing emergency help, and especially the granting of authority to the State Forester to enter cooperative agreements for the purpose of preventing and suppressing fire with the Federal government, cities and counties, and private parties."[10] A few weeks later, the State Board of Forestry was also reorganized.

In 1911, Congress had passed the Weeks Act which provided for matching funds to states that qualified. Specifically, Federal aid for cooperative fire protection work was made available. Along with the other changes that came in 1919, the State Legislature appropriated $25,000 for fire prevention and suppression work. The Forest Service, under the Weeks Law, provided $3,500 for salaries of field men. Information about the State's first four rangers or "Weeks Law Patrolmen" is sketchy at best.[11] They were employed for four months, covering the summer period. They worked wherever needed but were individually headquartered in Redding, Oroville, Placerville, and Auburn. The State Forester had reported that three million acres of watersheds covering the Stanislaus, Mokelumne, Consumnes, American, Bear, Yuba, and Feather rivers outside of the Federal reserves were to be afforded protection. No explanation has been given as to why the river systems and the headquarters locations didn't exactly match.[12]

In 1920, the ranger organization was restructured and expanded with ten rangers overseeing ten districts. The districts were: 1) Shasta County; 2) Butte and Yuba Counties; 3) Placer and Nevada Counties; 4) El Dorado and Amador Counties; 5) Tehama County; 6) Colusa County; 7) Lake County; 8) Mendocino County; 9) Napa County; 10) Santa Cruz, Santa Clara, and San Mateo Counties.[13] Over the next decade the district system and the ranger force slowly grew. The districts were limited to a combination of no more than four counties in each unit. Other than their salary, State money to assist the State Rangers in carrying out their duties was basically non-existent. As a result the rangers became very self sufficient and creative in providing for their own needs. This ground level initiate and independence became a hallmark of the CDF ranger system. It also proved problematic whenever proposals for a more centralized or uniform system were offered.

One particular area of building construction that did garner support and publicity was the building of state fire lookout stations. In 1921, Merritt B. Pratt was appointed to the post of State Forester. It was during this year that the Stockmen's Protective Association of Alameda and San Joaquin counties erected a lookout building on Mount Oso in western Stanislaus County. The facility was turned over to the State and marked the beginning of California's own State-run fire detection program. In the following year, Mount Bielawski Fire Lookout Station was constructed using State Funds. This station, located in Santa Cruz County, was considered by Pratt as the first official State lookout. In the *Ninth Biennial Report to the State Board of Forestry,* Pratt reported:

> The first lookout tower on Mount Bielawski, the highest point on Castle Rock Ridge between Santa Clara and Santa Cruz counties, is the first structure of its kind which has been erected through the efforts of the State Board of Forestry. This 60 foot steel tower, and the 18 miles of telephone line connecting it with the California Redwood Park in Big Basin, was made possible through financial cooperation extended by Santa Cruz, Santa Clara and San Mateo counties, the State Highway Commission and the California Redwood Park Commission. There is also a connection with the Los Gatos telephone line which was made by a three-mile line built by local ranchers in co-operation with the State Board of Forestry.
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> The telephone line to the California Redwood Park was constructed and the lookout tower erected by state rangers under the supervision of Inspector Frost, State Board of Forestry. On July 2, 1922, the tower was dedicated.[14]

Of the dedication ceremony, Pratt quoted from the Santa Cruz *Sentinel* this account of the affair:

> Sunday afternoon before an assembly of about 250 people on Mount Bielawski, a new 60 foot steel tower was dedicated.
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> The ceremonies were simple but impressive. Mr. Sanders, the well-known public spirited citizen of Saratoga, was master of ceremonies. There were also present a large number of people from the surrounding districts in Santa Cruz and Santa Clara counties.
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> At the command of Mr. Sanders, the Santa Cruz Boy Scout Troop No. 3 opened the ceremonies, Scout G. Penniman sounding the bugle call, immediately following which the flag was raised by Scout Donald Rogers, the other Scouts forming a hollow square. No sooner had Old Glory reached the new high point than Scout J. Sowder, who by then had perched himself well up in the tower, wig-wagged the following message to the people and the rest of the Scouts assembled below:
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> "We dedicate this tower to the conservation of our Santa Cruz forests, which we have learned to love for the beauty, the joy and the wealth they give us."
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> State Forester M. B. Pratt was next introduced. He made some very interesting and prophetic remarks on the usefulness of this fire lookout station system, which his office will establish in this state. This being the first one of these projects, Santa Cruz County may consider itself fortunate and honored. He explained how this tower was made possible by the co-operation of the three counties of Santa Cruz, Santa Clara and San Mateo. He praised the foresightedness of the supervisors in these three counties. Henceforth the state will assume full control of that tower, keeping there a constant guard. The tower is connected by means of a telephone line to the outside world. Mr. Smead, a local resident, will act as guard. Mr. Pratt made special mention of the generosity of Mrs. Smead, who turned over to the state a 99-year lease at $1 per year to over an acre of ground.
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> State Senator Jones followed, giving a very interesting review of the history of the conservation movement in the Santa Cruz Mountains. How the necessary appropriations were secured from the state for what was up to last year the only state-owned park. Mr. Jones made the interesting remark that within 50 miles of this state redwood park was found one-third the population of the state. This valuable asset, he stated, is worthy of the best care that could be bestowed upon it.
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> Chairman Rostrom of the Santa Cruz board of supervisors expressed his warm appreciation over what had been done. He mentioned the fact that in previous years it had always been very difficult to secure exact information as to the location of fires; that this system just established would undoubtedly give some much needed information and would therefore be a valuable asset.[15]

Despite the pomp and circumstances attendant to the opening of the State's first fire lookout station, progress proved to be slow for State Forester Pratt, as he continued to struggle with spartan budgets. In 1923, the State's forestry program supported 16 rangers, four inspectors and

two lookouts. By 1927 the force was up to 28 rangers, seven inspectors, six patrolmen and nine lookouts. During the interim, Congress had superseded the Weeks Act with the Clarke-McNary Act (of 1924). The law greatly expanded federal assistance to state forestry programs, and California was beginning to avail itself to this funding source.

Another topic that received attention but no funding was the idea of building a State Forest system. The Board of Forestry was very keen on this proposal. They wanted to acquire cut-over timber land. The lumber industry was also supportive. A legislative bill was drafted asking for $150,000 each biennium to accomplish this goal. However, as Clar puts it, "recreation groups" launched a "concerted drive... to save some of the virgin redwoods before it was too late... Before the legislative session of 1921, these dedicated people proclaimed "Now or Never" so forcefully that the Legislature passed a bill appropriating $300,000 specifically to purchase land in Mendocino and Humboldt Counties... The drive to acquire State Forests had been pretty well shattered..."[16] The groups had organized as the "Save-the-Redwoods League." Their aim was to have a State Park which ironically fell under the jurisdiction of the State Board of Forestry.

In 1927, Governor Clement Calhoun Young orchestrated a reorganization of State government, creating the Department of Natural Resources with a Division of Forestry and a Division of Beaches and Parks. Administration of the State's parks was henceforth no longer a responsibility of the State Board of Forestry. The California Division of Forestry, as the forestry agency was now officially designated, would be headed by the State Forester who reported administratively to the Director of the Department of Natural Resources.

Clar describes, in his brief history of the CDF, that at the end of the 1920s more counties had:

> ...entered cooperative agreements with the State Forester in order to have the State place a Ranger in their territory and conduct an operation still paid for essentially by county funds. In fire emergencies requiring the hiring of temporary personnel the State paid the bill, even though it often required appeals to the State Department of Finance for special allotments of funds to do so.
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> Such a system was beginning to develop a most unhappy administrative or organizational situation. Since the State furnished only "overhead" supervision it was incumbent upon the "County Ranger" to look to the local Board of Supervisors to furnish him with many material aids and often such assistants as clerks, truck drivers and even Assistant Rangers. Almost nothing was available from the State budget for structures and other physical features such as lookouts, telephone lines or firebreaks.
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> That was one reason why the state was so proud of having fabricated at the Highway Shops in 1929 four specially designed fire trucks. There were few forest trucks existent in California at this time but of necessity the great majority of them were either built by, or for a county at the request of the locally assigned State Forest Ranger.[17]

Clar noted that this situation of each State Ranger being on his own, led to great disparities in the fire protection system statewide as wealthy counties naturally built their systems up, leaving the poorer counties behind. The contrast was becoming more problematic as many counties agitated that if they spent more then the State was obligated to spend more in their territory. This

competition for State funds, as well as the need for a consistent statewide wildland fire protection program continued to nag at the State Forester and the State Board of Forestry.

In 1931, the Board of Forestry hired Burnett Sanford, a forest engineer, to study what had become a "complex and generally unplanned system of allotting operating funds among the numerous geographical sub-divisions into which the Division of Forestry had been allowed to grow."[18] "The "Sanford Plan" basically proposed that State funds be apportioned along the lines of "weighted values" of area protected.[19] The values were couched in the general concepts that had brought about the National Forests. Specifically, the State was concerned about watershed management and timber management in the larger sense. Also, of concern was public recreation and wildlife preservation.[20] The plan criticized the type of rural organization that had occurred, for one reason because the higher valued mountain regions were receiving less attention (read that protection) than the low lying range lands and valley floors. Sanford did broach the subject of fire statistics as a basis for determining suppression needs. But, at the time he worked out his plan, data for non-Federal lands was viewed as suspect by Sanford and he basically discounted its use from his methodology.[21] There is far more to this planning effort than can be recounted in this short history, suffice to say it was generally accepted and became the basis for restructuring the financing scheme for state forestry. Under the Sanford Plan, the State was divided into three classes. Class I lands had the highest value to the State embracing watershed, timber, and recreation areas. Here the State would focus its fire protection efforts. Class 2 lands had no general value but would be protected as needed because fires here could potentially threaten Class 1 lands. Class 3 lands were left to the local citizenry to protect.[22]

The topic of fire statistics seems as good a reason as any to interrupt our story about the CDF to see what the Forest Service here in California was up to in the 1920s. Besides an ongoing capital improvement program, the Federal agency had immersed itself in a number of studies focusing on the problem of wildland fire control. Fire behavior among various fuel types, the effectiveness of light-burning, and the general use of control fires in forest management were but some of the issues being tackled. The Forest Service had also commenced mapping the state's vegetation zones and the National Forests continued the compilation of annual fire statistics.

Another important undertaking was the Forest Service's initiation of visibility mapping of the seen areas around existing and proposed lookout stations. These maps were correlated with fire occurrence zone maps to determine the effectiveness and/or significance of a given detection point. During the 1920s additional research into the fire detection system revealed that fire lookouts could be expected to reliably detect smokes within a 15 mile radius of the observation point and that detection should occur within 15 minutes of fire ignition to affect a reasonable chance for rapid fire control. These, and other findings, were giving credence to the growing suspicion that the existing fire detection system was inadequate. In addition to relatively large fires going undetected, federal fire control officers saw an inherent weakness in not having a cooperative lookout network between adjacent National Forests. Furthermore, many areas of potential threat lying outside the National Forests were left totally in the blind.[23]

A leading advocate for a statewide detection system was Stuart B. Show. He became the California District Forester in 1927. In 1930, Show formed an investigative group at the California Forest and Range Experiment Station (Pacific Southwest today) to scrutinize every aspect of the detection problem. The group, headed by Edward I. Kotok, left no stone unturned.

From structure design to psychological testing of lookout operators, their findings poured forth. The final recommendation: California needed an integrated, network of lookouts from the Oregon border to the Mexican line to insure rapid and accurate fire discovery. Many lookouts were already in place but Kotok's group reported a pressing need to build still more stations, replace existing buildings, and abandon deficient sites. The means to undertake such an extensive building program would soon be forthcoming.

The Forest Service's idea of an integrated detection system included surveillance of state responsibility areas. In fact, the Forest Service welcomed and defended any effort by the State Forester or the State Board of Forestry to have the State Legislature appropriate more financial support to the Division of Forestry. The state responsibility areas by and large surrounded and threatened the well-being of the National Forests in California. From 1927 until 1933 an additional 20 or so fire lookout stations were founded. Many of these were "cooperative" projects with the Forest Service. Whether they knew it or not, Californians were witnessing the slow growth of a State-run, statewide fire protection department or at least fire detection department. Suppression forces, i.e. firefighters, were hired as needed. Actually, a better and more accurate statement is that men were hired to fight large fires after the fires had broken out.

In 1931, the CDF had 190 men in the field. This included 35 Assistant Rangers and 105 seasonal employees. Of the 105, 65 were supported by county funds and 15 by the U.S. General Land Office. In his book, *California Government and Forestry – II: during the Young and Rolph administrations,* Clar reports that:

> Actually, there were some more field men on the State payroll for a three months period. These were the new crewmen, sometimes called "sit tight" and eventually known as suppression crews. Sixty-four fire trucks were now operated under the supervision of State Rangers. Of these, 36 were owned solely by the Division of Forestry.
>
> The idea of organizing and maintaining crews of forest firefighters in the manner of city fire departments was not startling in 1931. Such stand-by, sit tight, or fire suppression crews (as variously called) had been recommended by the foresters for a long time. The failure to create them was related directly to a lack of sufficient funds and the belief of fiscal authorities that expenditure for labor during any time when no large fires were burning was a waste of public money.[24]

Clar adds that the Los Angeles County Forester had established a fire crew in 1928. In the summer of 1930 "One or two pilot crews had actually been established.... through the quiet ingenuity of several State Rangers." In 1931, the State Director of Finance, Rolland Vandegrift concurred with the Division of Forestry's request to start building a fleet of fire trucks. He also agreed to use $20,000 from the State's fire emergency fund to hire ten "sit-tight crews" and pay for "salaried men on firetrucks throughout the State on a monthly basis." He believed that in the long run this would save the State money, he also recommended against giving any publicity on this action until after the men had been hired. The Great Depression was in full fury and Vandegrift feared the "tremendous demand for jobs" the policy would generate.[25]

The Great Depression had a profound impact on both State and Federal wildland fire protection. That affect came principally through the formation of conservation labor camps. The general idea of labor camps was an old one. Francis Cuttle, a Southern Californian that had been in the

forefront of the forestry issues since the early part of the century, had advocated for years a work camp program. As the Nation's economy degenerated California had become a beacon of hope. Thousands of the unemployed poured into the State. In the summer of 1931, S. Rexford Black met with Finance Director Vandegrift to discuss a work relief program. Black was Secretary of the lumberman's California Forest Protective Association and in August he was also appointed to the chairmanship of the State Board of Forestry. In the winter of 1931-32 the first State labor camps were formed. State Rangers were assigned to oversee the camps, the work was to benefit the public. Jobless men and their families could come and go from the camps as they wished. In exchange for four to six hours of labor the men received food, tobacco, and some clothing. The program was strapped for funds, supplies were low, accommodations poor but the program succeeded. Hundreds of miles of road and firebreaks were constructed, telephone lines repaired, campgrounds improved, and roadside hazards removed. The camp program ceased in the spring but was re-activated in the winter of 1932-33. It's been suggested that the California relief effort was the model for the Federal programs instigated during Franklin Roosevelt's Presidency.

A brief discussion on the Federal Government's policy of transferring the Public Domain into private ownership was entertained earlier in this history. One of the many things not mentioned, was the policy to transfer select parcels of Federal land to State ownership for school lands. Clar's, *California Government and Forestry: during the Young and Rolph administration,* reports that the State surveyed its Mount Zion school land holding in 1926 for determining a location to erect a lookout. This parcel was transferred from the "school land category" to the CDF in 1932. In the winter of 1931-32 one of the State's first unemployment labor camps was established here. In 1933, a CCC camp replaced the State camp. Clar also reports that in 1932 a "group of civic minded women of Amador County had organized a Mt. Zion Improvement Club...for the purpose of improving the public recreation facilities at the site." Monies were raised for additional land acquisition. In a letter of official thanks sent to the Amador group from Merritt Pratt, the State Forester wrote that the site would henceforth be known as the Mount Zion State Forest.[26] A funded State Forest program for land acquisition was not, however, approved by the Legislature until after World War II. As an aside, during President Roosevelt's tenure in office, the Homestead Act as it applied to the Public Domain in the continental United States was discontinued.

Returning to Roosevelt's work relief programs, when California District Forester Stuart Show organized the investigative group at the California Forest and Range Experiment Station he anticipated that there was a need to improve and expand the Forest Service's fire lookout system. He was also cognizant of the fact that the State's lookout network was severely deficient. Show's desire to enlarge the lookout network dovetailed nicely with the arrival of the conservation work programs. It's been suggested that the State of California's conservation labor program ideas were carried to the President by way of Show. He certainly played an instrumental role in securing a significant number of Federal conservation camps for the State.

President Roosevelt asked Congress to set up a Federal Relief Administration to oversee a grants program designed to assist in relieving the unemployment crisis faced by the Nation. Unemployment relief through the performance of useful public works was the President's philosophy. In April of 1933 the Emergency Conservation Work (ECW) program was established. It became known almost instantly as the Civilian Conservation Corps (CCC). Show and Kotok had already developed a plan of attack on how to utilize this new labor pool. Funded

by ECW money, the CCC would be assigned three basic tasks: firebreak construction, lookout station building, and general improvements. The "Three Cs" would cut fuelbreaks around the State, with particular emphasis on establishing the "Ponderosa Way Firebreak." This continuous fuelbreak extended the length of the Sierra Nevada Mountains, and into the Cascades, ending north of Redding. The firebreak was intended to be a permanent defensive line between the lower foothill regions and the higher elevation National Forest lands. The second project, construction of an integrated, statewide fire detection network would bring to fruition the recommendations of Kotok's investigative group. The third task, general improvements, included the building of administrative and fire suppression bases, installation of roads, bridges, telephone lines and innumerable other conservation projects.

In his report to the Director of the Department of Natural Resources of January 1935, Pratt commented upon the fire detection program as follows:

> In the good old days of the Federal and State Forest Service in California the number of lookout stations built was regulated more by a cramped budget than by necessity. When money was available for a new lookout the local ranger would mount his horse, ascend the highest peak in his domain, and proclaim to the few people who cared, "Let's build her here."
>
> With the advent of the Emergency Conservation Fund a serious plan of detection was made possible.
>
> Fortunately, the Shasta National Forest had been used as a field laboratory in fire control for several previous years. One phase of control that had received its share of study was fire detection.
>
> The California Forest Experiment Station, and specifically, George M. Gowen, with his staff, had brought out several vital facts through research and experimentation. These men could prove that 95% of all fires reported by lookouts were within a fifteen mile radius of the lookout. They showed that "discovery time" - (elapsed time between start of fire and detection) was longer than had been suspected, thereby sounding a warning against deep "blinds."
>
> Their technique of developing a detection system was brought out at two ten-day schools held in April of 1933 at Mt. Shasta. A young technical assistant from each National Forest attended as well as a dozen boys just out of forest school, who were later employed in the field. National Parks, County Foresters, and the State Forester sent representatives.
>
> The most efficient methods of mapping visible area from any peak were studied. Relief models were prepared to show by direct light just how land forms obstruct view...
>
> The underlying principle in detection planning is to concentrate on the area where most fires occur. This principle is varied somewhat in the case of the Division of Forestry, wherein land values are weighted against the zones of high fire occurrence. The Federal Service is content to furnish additional suppression strength in valuable areas while they adhere strictly to the theory that detection must be based on fire occurrence. However, it

must be remembered that incendiary outbreaks, so prevalent in State Forestry records, are of a shifting nature.

Let us assume that we are to construct a scheme of lookouts in a certain region. Our first step is to determine every single observation point that has a possibility of becoming a lookout and to obtain a [visibility] map for each point. This last requirement was a most difficult task in some parts of California.

Field mapping crews of two men are sent out to map visible area from each point.

In the meantime, office records are searched and fire reports for the last ten years are brought out. Fires for each cause are "spotted" separately in their proper place of occurrence on a master map of the unit under consideration. After this "spotting," fire groups of approximate equal intensity are arbitrarily blocked out into individual groups. The reason for segregating causes now becomes apparent. "Camper" fires will be limited to a narrow zone of campsites, and railroad fires will be likewise confined. Then, too, the cause of certain fires may have been naturally removed, so that these fires can be disregarded. Lightning and incendiary fires may be loosely zoned (grouped) since their origin is not closely limited in distribution. The resultant zones of origin are now superimposed and a master grouping of fire occurrence spots is constructed from the composition.

Now each spot group is planimetered to determine its size, and each internal fire is counted. Thus we establish a "fire per acre" intensity for each group or zone.

We may now say that a zone wherein occurs .5 to 1.5 fires per 10,000 acres per year is a zone of low fire occurrence intensity but a zone of 4.5 (and over) fires per 10,000 acres per year is our highest extreme. If an arbitrary limit is thus set for intensity groups we may apply a significant color to each group and there we have a map with splotches of color representing our past "fire business."

In theory future fires will occur approximately where past fires have occurred and this seems to follow in fact, not excepting lightning fires.

Our next step is to make a tracing of each visibility map. Then each tracing is individually superimposed over the "fire business" map in its proper place and the area of each particular intensity zone visible from the proposed lookout is recorded...

...the number of lookouts proposed for the State Division of Forestry has been doubled as a result of the study. Coverage is still thin but we have on record visibility maps for nearly two hundred peaks and we are in a position to fill in blind spaces when the proper time comes.

Of great importance is the fact that we now have sound justification for each lookout station expenditure.[27]

It's interesting to note that fire statistics, which had been dismissed from the Sanford Plan, played a key role in the Forest Service system of organization. To be sure, the Forest Service had been early and thorough in documenting fire occurrence upon their lands. Sanford's rejection was

based on the valid observation that fire records for state responsibility areas were incomplete to non-existent for many regions. Fire statistics, or more precisely fire occurrence, would increasingly be a leading component in State fire planning from here on.

The CCC program lasted from 1933 to 1942. When it ended, the Three Cs had constructed over 300 lookout towers and houses, some 9,000 miles of telephone lines, 1,161,921 miles of roads and trails and erected numerous fire stations and administrative buildings. The CCC had also planted over 30 million trees and had spent nearly one million “man days” in fire prevention and suppression activity. Because the CCC was expected to fight forest fires, they constituted the single largest wildland suppression force ever assembled in American history. Pinchot's dream of total fire exclusion had become a reality. And, the State of California had inherited a wildland fire protection system, at least the buildings for one.

The Forest Service system of lookouts, guard stations, and ranger stations had been renovated, replaced, and/or expanded. For the California Division of Forestry, a system of fire stations and lookouts now existed throughout most of the fire prone areas of California. The Forest Service had identified about 60 sites for the CDF detection system. Approximately 50 new lookouts were erected by the Civilian Conservation Corps for the California Division of Forestry. At least 30 of these stations were on sites previously not utilized by the State agency. Most of these lookouts were erected from 1934 to 1936. Some of the fire suppression camps located at the CCC camps became permanent State fire stations. In other instances a “spike camp” was extended from a base CCC camp. This spike camp would eventually evolve into a permanent fire suppression camp in the CDF system. Clar reports that State Forester Pratt remarked that the CCC program thrust the CDF “twenty years ahead of itself.” As Clar comments, “That was a modest boast if otherwise anticipated progress was to be measured by prior achievement.”[28]

It's at this point in our story that C. Raymond Clar comes to full significance. His career with the CDF had begun in 1927. On the heals of the Sanford Plan, Clar and a few other forest technicians were instructed to “study and prepare plans for an orderly development of fire lookouts, crew stations, telephone lines and the personnel and auxiliary equipment to go with them.”[29] The group was to take stock of the situation and develop a long range fire plan, regardless of the funding source. As for the fire lookout portion of their task, most of their work built on the methods and findings of the Forest Service. The rest of the planning effort went forward but it was difficult for some of Clar's fellow investigators to ignore the influence of funding sources. Their findings and recommendations were taken under advisement, full implementation was deferred.

In 1938 the Board of Forestry instructed the State Forester to prepare a comprehensive statewide fire prevention, protection, and suppression plan. The outbreak of war in Europe added a new dimension and gravity to the fire planning studies of the '1930s. It heightened apprehension about the State's vulnerability to fire. The earlier fire planning provided a foundation upon which a revised and solidified plan could be established. In 1939, the Board of Forestry appointed a four man committee of staff and field men to prepare a fire plan for 1940. Clar was named chairman of the committee. The “Fire Plan of 1940” or “Clar Plan” as it became known redressed the financing scheme laid out in the Sanford Plan. As Clar states, there were “...two simple concepts. First, the idea seemed clearly reasonable that a consistent designation of area need should be indicated by types and numbers of units in the planned protection system, as

modified by climate, geography, and the local fire problem... The second concept required a strict segregation of State responsibility from that of any other entity, government or private, and the use of State money to meet that responsibility."[30]

Counties could, as Clar pointed out, freely "augment the State effort for any specified fire protection purpose. Firetrucks and drivers would be maintained by the State during the winter months, and any number of patrolmen or rural fire stations would be maintained during any time period, all as specified and paid for by the county."[31] The main significance of the Clar Plan was the proposition that the "State of California was to assume complete jurisdiction and responsibility for suppressing forest and watershed fires" on lands so designated by the State and that all other areas were the primary responsibility of the respective city, county or Federal agency in whom's jurisdiction it fell. The Clar Plan also proffered that a "physical plan of protection including personnel, structures, communication facilities and equipment [should be] developed strictly upon the basis of need to accomplish the fire control job without the slightest concern for political boundaries or anticipated source of funds," This internal plan of "unification" as Clar put it, was being driven by many factors including the Federal work program and the depletion of "county treasuries" from the continuing economic depression.[32]

As they pounded out and promoted the Clar Plan the Board of forestry's committee called, as Clar writes "...the very independent rangers... into conferences by regions. Six regions were designated by the committee because of their individual topographic and climatic consistency. The committee later recommended the creation of Division administrative districts of identical description to supplant the loose confederation of county ranger units."[33] Los Angeles County registered opposition to the plan because their area had been ignored. The complaint was valid because the planners were only concerned about an equitable financing plan for lands directly protected by the State. Los Angeles, Ventura, Santa Barbara, San Mateo, and Marin Counties frustrated by the State's lethargic response to the wildland fire problem had developed independent fire departments in the 1920's. Referred to as "non-Division, outside, or contract counties" Clar says these counties had good programs but they also were on average spending more per acre for fire protection than the State would. In response to the criticism the committee studied the five counties and then proposed continuance of a slightly modified Sanford Plan approach for these entities.[34]

By 1939, the CDF was responding to some 5,000 fires per year. The CDF had 230 regular personnel, approximately 800 seasonal employees, 330 vehicles about half of them being "water carrying fire trucks," seven bulldozers, and a growing collection of two-way radios.[35] The CCC program, though, was coming to an end. In 1940, Washington notified the respective federal and state agencies that the CCC would no longer serve in initial attack for fire control. Meanwhile, events transpiring elsewhere in the world were about to elevate both Clar's planning efforts and the fire detection system to a new level of significance.

In 1920 Congress had passed the National Defense Act which called for a reorganization of the U.S. Army command system. An offshoot of this was the eventual creation of the General Headquarters (GHQ) Air Force (in 1935). It was the GHQ which established- the Aircraft Warning Service (AWS). Starting in 1937, California lookout operators were trained and tested in the art of spotting aircraft. Sometimes referred to as the "Aircraft Warning System," this pilot program soon spread along the entire West Coast. By 1941 it had expanded across the Nation. In

the meantime, the Army had instructed State governments to prepare a defense plan for their respective jurisdictions. In September of 1941, the State of California established the State Council of Defense. The Council of Defense saw in the Clar Plan a mechanism for a statewide fire defense plan. The Council advised the CDF to be prepared to "assume statewide fire dispatching and standby fire protection on the periphery of cities and vital industries."[36]

With Japan's premeditated and vicious attack upon Pearl Harbor, the AWS went on war status. Observers were rushed to their respective posts. The U.S. Army had delegated to the Forest Service the responsibility of seeing to it that all lookouts (Federal, State and local) were in readiness. Contingency plans had called for the winterizing of existing lookout stations and the erection of scores of temporary cabins at other strategic locations. (The fire detection plan for California allowed for distances between neighboring lookouts of nearly 30 miles but the AWS program specified spotters every 12 miles or less.) Clar, as Chief Deputy State Forester, assumed operation of the CDF's role in civilian defense and immediately had 30 fire lookouts staffed, all State firetrucks put on standby, and organized a 24 hour dispatch team at the central offices in Sacramento. The Clar Plan had projected a need of up to three million dollars to fully implement the policies contained therein. The civil defense actions of December 1941 quickly added a nearly $40,000.00 deficit to the State budget. In view of the times, State Officials did not object and emergency appropriations during the War years brought about the rapid implementation of the Clar Plan.

Earl Warren was elected Governor in 1943. The Governor appointed William Moore as Director off the Department of Natural Resources. Moore was familiar with and a supporter of the Clar Plan. Without delay he approved formation of the six administrative districts within the CDF. He also instructed the Chief Deputy State Forester to go, as Clar later wrote, "around the State to inform the boards of supervisors that henceforth the State Division of Forestry would give such fire protection to the delineated State and privately owned timber and watershed lands as a specified number of fire crews and other facilities would provide. And also, whenever necessary the State would pay such emergency fire fighting costs as might be deemed proper by the State. And further, the State would augment its forces to any extent and manner desired by the county when reimbursed for the actual cost of the service provided, plus a five percent administration fee."[37] Within a State structure for basic service, the counties had flexibility to build up their own systems with their own fiscal resources as they saw fit. The real significance of Moore's action was the committing of the State of California to hire and pay the salaries of seasonal and full-time employees in the operation of a statewide wildland fire protection department. The California State Government was now inextricably in the business of wildland fire control. The California Division of Forestry had come of age.

Shortly after the War, two other milestones in the CDF's history were reached. The idea of buying cutover land and establishing a State Forest system finally reached a receptive State Legislature. In 1945 a special bill was passed to appropriate $100,000 for the purchase of a tract of land which became designated the Latour Demonstration State Forest. Another appropriation to the tune of $600,000.00 soon followed for the acquisition of land in Tulare County. After the Mountain Home Demonstration State Forest was established in Tulare County the State Legislature codified and enacted rules under which the State Board of Forestry and the California Division of Forestry could acquire, manage, and administer State Forest lands. In 1946 a $2,000,000.00 "purchase fund" was setup by the Legislature. From this the lands which

constitute the Jackson Demonstration State Forest were procured. Several other State Forests have been added to the system since then.

The other milestone was the establishment of an “honor camp” program. Since formation of the second State Board of Forestry the notion that inmates should be used for conservation projects and wildland fire protection had been promoted by different individuals. During World War Two, with a critical labor shortage now in effect, select prisoners were taken from San Quentin and organized into hazard reduction and emergency fire fighting crews. The success of this operation paved the way for the introduction of a Youth Honor Camp system. In 1945 four such camps were founded and a cooperative arrangement between the California Youth Authority and the California Division of Forestry was approved. The CDF would provide personnel to supervise field work and provide appropriate fire training. The Youth Authority would maintain custodial care of the wards. The program soon extended to the California Department of Corrections' adult population and a system of honor camps (later renamed conservation camps) was developed.

The U.S. Forest Service's influence of and assistance to the CDF during the latter entity's formative years created an atmosphere of friendly cooperation between the two agencies. After World War II, with Legislative affirmation of its permanence and a growing budget to match, the CDF was able to undertake independent research, and develop its own strategies for refining and improving its wildland fire protection capabilities. A sharing of information continued and, of course, mutual cooperation in dealing with the fire regime of California was sustained. However, the CDF's direct responsibility areas had certain peculiarities unique to them, as opposed to the Forest Service lands, which added to this independent course of action.

One peculiarity was actually first identified by the Forest Service. It emerged in the 1940s and has continued to grow in complexity and difficulty. The problem was and is “urban interface” a condition where wildland fires cross from undeveloped lands into clearly defined urban areas. Because this was primarily a State-level dilemma and recognizing CDF's new role in combating urban-wildland interface fires, the Forest Service invited CDF in as a co-equal to study the problem. In the years since, the issue of urban interface, and the northern California variation dubbed “urban intermix” has remained a perplexing subject for fire planners and fire control officers in both agencies. It is beyond this history to enter into the topic other than to say it has had a tremendous impact on the cost of wildland fire suppression and has exponentially amplified the danger associated with wildland fire fighting.

World War II served as a catalyst for the rapid advancement in various technologies. Many improvements and discoveries proved beneficial to wildland fire control and forestry. A significant contribution was the overall renaissance in motorized equipment. Great strides were made in the construction of fire trucks. The bulldozer, introduced in the early 1930s, had improved to where it was fast becoming an integral and indispensable component of the suppression force “artillery.” From radio communication to defoliants to a myriad of other developments, wildland fire control was being transformed. Another notable new technology that developed in the 1950s was the introduction of borate bombers, the precursors to today's fire retardant carrying air tankers. Yet another “airborne?” development was the coming of the helicopter.

Bulldozer operators, smoke jumpers, “helitack” crews, airtankers, and more have refashioned wildland fire control departments. Rethinking on the use of fire, passage of environmental laws (including cultural resources protection), demographics and development, are all playing monumental roles in influencing the forestry and wildland fire management practices and policies of the CDF. In the process, the California Department of Forestry and Fire Protection has become the largest fire department of its type in the world today.

Today 85 million acres of California is classified as “Wildlands.” Some 15 million acres is identified as valuable forest land with about half of this being federally owned. In 1945, the Forest Practice Act was passed into law to regulate commercial timber harvesting on the non-Federal lands. The act was revised in 1973 and contains provisions that timber harvest plans for commercial operations are to be prepared by Registered Professional Foresters. CDF administers the law and logging operators must be licensed by the CDF to operate upon non-Federal lands.

Today's State Forest system includes eight units totaling over 71,000 acres. A CDF circular reports that “The objective of this program is to investigate and demonstrate improved forest management practices, to achieve maximum sustained production of high quality forest products, to protect environmental values, and to provide public recreation areas. The State Forests harvest about 30 million board feet of timber each year, enough to build 3,000 single family homes.”

As of 1994, the CDF had local government fire protection agreements in 45 of the State's 58 counties. The CDF is directly responsible for providing wildland fire protection for over 32 million acres with an additional 11 million acres covered under local government service contracts. The CDF is divided into 22 administrative units with 150 battalions. The physical plant includes 647 fire stations of which 232 are funded by the State and the balance are supported by local funds. The CDF labor force includes approximately 3,800 full time professionals, some 1,400 seasonal personnel, about 5,500 volunteer firefighters, and 2,600 Volunteers-in-Prevention. The CDF cooperatives with several different agencies in the operation of 41 conservation camps which collectively house some 4,200 inmates or wards that are available for wildland fire fighting, resource conservation, and other work projects. The CDF's air fleet consists of 20 air tankers, 11 helicopters, and 13 air attack planes. They are allocated across a station system of 13 air attack and nine helitack bases. The CDF operates 338 state funded fire engines, another 689 locally funded fire engines, 103 rescue squads, 12 aerial trucks, 59 initial attack bulldozers units, 203 fire crews, and 2 mobile communications centers. The CDF also has 11 mobile kitchen units that can each prepare hot meals for 3,000 people a day. The CDF also funds 82 engines and 12 bulldozers in six contract counties. The CDF also maintains one of the largest and most sophisticated fire training academies in the world and also operates five training centers in the conservation camp program.[38]

In reviewing the past century and a half, there are lessons to be learned concerning the State of California's natural resources. The last 140 years of human activity induced fuel modification in California has dramatically elevated the volatility of the wildland fuel bed. The last 80 years of adherence to the fire exclusion policy has generated unprecedented fuel loading conditions across the State. Changes in logging practices, environmental degradation, and periodic droughts have created the largest accumulation of dead and dying fuels ever recorded in State history. The dangerous Southern California urban interface problem has continued to grow unabated. The emergence of the more complex and explosive urban intermix has only served to heightened the

seriousness of the wildland fire control problem. California's frequent and sever fire regime has run headlong into the structural environment of scattered homes, subdivisions, and rural communities. The mix has set the stage for catastrophic devastation. Prior to the 1970s, wildland fire protection agencies could generally commit all their fire suppression resources for perimeter control of a fire, today this is not the case. As an example, three out of every five fire engines responding to a given wildland fire may actually end up deployed strictly for structure protection. It is this change in control strategy that is contributing to greater acreage being burned, increased suppression costs as well as forcing critical resource "draw-downs" during active fire periods.

Heavy winter rains will not alleviate California's cyclical fire seasons, periodic heat waves, lightning sieges nor do they interrupt the foehn wind phenomena. An increasing population base has not only meant a greater number of people and structures to protect from the effects of fire it also equates into a greater potential for fire starts. The results have been devastating for local, county, State, and Federal agencies. Over the past 50 years the CDF has witnessed a 100% increase in annual fire starts. Of the 10 largest fires to have occurred in California in this century only three happened before 1970. Of the 10 worse structure loss fires to have occurred in California history, only two happened prior to 1970. While Californians can take pride and comfort in having the world's top two wildland fire protection agencies the historic record is clear, we cannot relax our efforts to defend the timber and watershed resources of California. Both the United States Forest Service and the California Department of Forestry and Fire Protection need our support, and we need their skills and dedication.

Architectural History

Most of this report contains site specific recordations of the CDF buildings that have been identified as being over 49 years of age. Logically, then, a few words about the CDF's architectural history are in order. The discussion must embrace two parallel developments. One is the evolution within the CDF organization the other is the accomplishments of the Forest Service.

As we saw in the previous pages, the CDF could be said to have started in 1905 with the creation of the position of State Forester. From 1905 until 1919, the State Forester and the "forestry department" were one and-the-same. The "department" consisted of the State Forester and a few office staff and assistants based in Sacramento. The remainder of the department was the large body of local firewardens. They were, however, funded and supported by their local jurisdictions. In 1919, the first "State Rangers" were hired but it was their responsibility to secure housing and equipment through their respective counties. This can be said to have characterized the State architectural program until the CCC era with the exception of the fire lookout program and the Davis Nursery.

Clar's history, related earlier, reports that the Davis Nursery buildings were rendered in a "colonial" design by the "State engineer" in 1921. This maybe the only CDF associated buildings that were based on State generated plans prior to 1931. Fortunately, at least one of the original Davis buildings has survived relatively intact to the present day. The survivor is a house which has been moved on two occasions and has lost some of its Colonial styling but it still reflects its heritage.

The first State funded fire lookout was erected on Mount Bielawski in the Santa Cruz Mountains in 1922. The tower was from the Aermotor Company. The mid-West Company was a regular supplier of steel towers to the Forest Service from the teens through the 1930s, and for the CDF from the 1920s through the 1930s. These were observation-only towers, i.e. the 7' x 7' cabs were occupied by day and the lookout retired to a small cabin at night and during meal breaks. The Aermotor Company tower design had been around since the beginning of the century. The Mt. Bielawski residence cabin was a small rectangular building that might be described as a "vernacular" house with Craftsman-Bungalow elements. It was removed many years ago. The Mount Oso fire lookout tower was erected ahead of the Mt. Bielawski station but through local, private initiative and resources not with State funds. The original tower is gone but historic photographs show that a non-standardized building was installed at this site, a typical occurrence for "donated" buildings. Several more state fire lookout stations were established in the 1920s. Generally, they consisted of simple observation-only towers with small living quarters nearby. If the construction was directly funded by the State, the towers were either steel Aermotor types or simple wooden observation-only towers. From 1927 to the CCC era the CDF fire lookout collection nearly tripled in size with much of this activity performed in cooperation with the Forest Service. As can be expected, these buildings usually conformed to the Forest Service architectural standards of the day.[39]

Other than the fire lookouts, the construction of buildings in the 1920s to serve the needs of the State Rangers was pretty much the individual State Ranger's responsibility. That is to say, the State of California did not fund for any construction. The "historic" San Jacinto Ranger's Office now located at the San Jacinto Forest Fire Station is the only known surviving State Ranger's office from the 1920s. It can be described as a small "vernacular" styled building with both Neoclassical and Craftsman-Bungalow elements. It probably was loosely based on the duBois plans used by the Forest Service at that time. The office was originally on private land.

The first State firetrucks were not acquired until 1929. It's unknown where they were housed but they are believed to have been sheltered in buildings provided by the counties they were assigned to. The first official State "standby crews" were not hired until 1931. The old fire station buildings upon Mount Zion are the only pre-CCC era suppression station facilities in the CDF property inventory. They were constructed as part of the State labor camp located at the site in the winter of 1931-32. The buildings were "reconstructed" in the early 1950s, and the degree of historic integrity loss has not been ascertained.

We turn now to the pre-CCC era Forest Service building policies. Forest Service, California District Forester Coert duBois is acknowledged as having set the policy of "standardized building plans." He established the concept with the publication of his *Systematic Fire Protection In The California Forests* in 1914. Three years later a manual with working plans for ranger's offices, crew quarters, lookouts, barns, and other buildings was published and circulated throughout the Forest Service system in California. (There is good indication that duBois' plans were utilized by other National Forests outside of California, as well.) In commenting on this circular, the Forest Service's publication *Contextual History Of Forest Service Administrative Buildings In The Pacific Southwest Region* by Dana Supernowicz, reports that duBois' plans "were adopted by many forests, but due to varying mill grades of lumber, accessibility, costs, and individual preferences, the final buildings were often different from the original plan."

Even duBois, in his 1917 manual acknowledged that there would be times and circumstances when special designs may have to be substituted for the standard plans. Thus, a rigid system *of* architectural conformity had not been implemented. Supernowicz comments that the duBois "...buildings were small and inexpensive to erect..." He adds that the cost for a one room office was "...$112 in labor plus materials, well within the [Forest Service's] $650 building spending limitation..." Supernowicz describes the buildings as reflecting "...the influence *of* the Craftsman architecture of the era and were obviously designed with an eye to more than strictly functional requirements. Designs such as dwelling 1 D [a one room office] with its classic temple inspired front porch, overhanging eaves, clapboard siding, and gable roof would be right at home in almost any working-class neighborhood of the era."[40]

The duBois circular served as the guideline for Forest Service buildings throughout the 1920s. As the 1930s began, the Forest Service adopted a policy which required that local rangers and supervisors consider the long range utility of a site and usability of a building before committing funds for construction. Also, the construction of fire protection facilities was prioritized over that of administrative improvements. The emphasis on fire protection facilities came from District Forester Stuart Show.

With the advent of the CCC program, Show assigned Assistant District Forester, Louis Barrett, the task of overseeing an architectural section within the Forest Service administration at San Francisco. This section, which included landscape architects, was to prepare drawings for the various buildings and stations expected *to* be built with CCC labor. A June 16th, 1933 *California Ranger (a* California District Forest Service newsletter at that time) reported that the architectural style to be adopted for the new CCC buildings would be "all American old world influences are barred and Uncle Sam's new ranger stations will represent only the best in the U.S.A." The newsletter continues:

> ... [a] revolution in Forest Service architecture [is] about to occur...
>
> The new deal is about to bring a renaissance in Forest Service ranger station architecture according to L.A. Barrett, Chief of Lands. The heterogeneous aggregation of administrative domiciles from the prePinchot cabin to the late-Stuart bungalow will, in due time, be replaced by houses which will combine the last word in art, comfort and utility. Not only will the lines of our ranger station be revamped but the color scheme will be improved. The green roof will be retained but the French-battleship grey paint, which has depressed the morale of the rangers for fifteen years, will be changed to a brown stain to blend appropriately with the colors of the forest.
>
> All of this is cheering news. We will forget the past quarter century when the almighty dollar dictated to culture and every supervisor was his own architect. Unfortunately it is going to take us a long time to live down the amazing variety of stations built in this free for all period. We have most everything now, the trapper's cabins, miner's shacks, cowpunchers' bunk houses, ranchers' homes, and the bungalows of the southern Californian from Iowa.
>
> Perhaps if the technicians can combine these forms and mix in few we haven't tried... with just a suggestion from Barrett's Specialists, they will evolve a distinctive model

> which will turn out to be the Great American home and will establish a new school of architecture.[41]

Two of Louis Barrett's architects were E. Maher and N. Blanchard. The men were the primary if not exclusive source for the new Forest Service architectural style to be adopted for the CCC construction program in California. The Blanchard and Maher drawings included plans for residences, residence garages, suppression station truck garages, ranger station offices, ranger station equipment storage sheds, warehouses, gas and oil houses, and a wide assortment of other building types. Supernowicz, in his report, indicates that the Blanchard and Maher style was dubbed "Mother Lode architecture" but the two men never "defined what was meant" by the appellation.[42] Supernowicz goes on to report that the men "...were influenced by the work of fellow [San Francisco] Bay Area architect William Wurster, who in the 1920's and early 1930's was developing a design vocabulary based on the rural vernacular building of mid-19th century central California..."[43] Supernowicz later describes the Blanchard and Maher designs as being influenced by both the Craftsman-Bungalow and California Ranch styles. The former was very popular in California in the 1920s and the latter gained popularity in the 1930s and '40s.[44]

The ECW placed cost ceilings on building construction so various means were enlisted to keep expenses down. Supernowicz also reports that: "...no contributed labor was allowed except the CCC crews which were used primarily for the rough labor, such as constructing foundations, basements, rough framing, roofing, and building rock walls."[45] The idea of prefabricated buildings had been considered by the Forest Service architectural team but, Supernowicz reports:

> ...Blanchard and Maher decided that at the time the West Coast had little to offer in the field, and experiments conducted in other areas resulted in substantially higher costs. Rather than prefabrication, [Forest Service] Region 5 adopted a "ready-cut" design. The ready-cut system of building was adapted to home and commercial building construction shortly after 1900. The idea of ready-cut housing may have been the result of factory techniques employed by the automobile industry for mass production. During the 1920's the growing home market created a demand for inexpensive housing, in particular for suburban tract housing. The depression of the 1930's only increased the demand...[46]

Supernowicz also comments that wood was the preferred material for Region 5 and quotes Blanchard and Maher on this:

> The outside finish was clear, all heart redwood or western cedar. Under the building paper was shiplapped diagonal sheathing. On the inside clear Douglas fir or ponderosa pine was used to panel the interior. Floors and ceilings were of Douglas fir T & G and the roofs covered with wood shingles over paper and solid sheathing. Subfloors were laid diagonally.[47]

The Forest Service was lead agency for implementing the CCC program. Besides setting policy for building and site designs, the agency arranged acquisition of materials and delivery, and scheduled project assignments. There's good indication that the Forest Service's position in the oversight of the conservation projects occasionally left the CDF at a disadvantage. As regards fire lookouts, the live-in tower and cab had long become the favored building type. Towers could be constructed of either steel or wood with steel being preferred. However, steel towers were hard to come by. A competition of sorts between the various National Forests of California for

these towers seems to be vaguely alluded to in some of the CCC era reports on construction progress. The CDF however only obtained three or so of the several dozen towers that were up for grabs. Perhaps another indicator of the Forest Service's first-in-line perquisite was the fact that a number of state stations were not constructed until after the majority of the Forest Service facilities had been completed. This could, of course, also reflect the CDF's lag in preparing a statewide program for identifying and locating appropriate station sites. And, the CDF was saddled with delays attendant to purchasing or leasing land, and gaining easements through adjoining properties for roads and/or utilities. The Forest Service system of fire protection buildings was nearly always upon federal land with little or no intervening private land to deal with.

The CCC program lasted from 1933 to 1942 with most of the capital improvement work for the Forest Service completed by the end of 1939. By this time a number of the CDF's buildings had also been erected and most were based on the Forest Service plans. In fact, several drawings rendered by the Forest Service were titled for the "State Division of Forestry." An example is the kitchen-mess hall at the Alma Forest Fire Station. It was originally an office and the working plan is still in the Forest Service files in San Francisco.

Figure 1: A "chevron" louvered attic vent.

Blanchard and Maher incorporated several stylistic details which have left their signature on the various building types they drafted. One trait used on combination barracks, offices, and garages was the three panel "chevron" louvered attic vent (see Figure 1). A number of examples of this vent style are still in the CDF building collection. Another characteristic found at the gable ends of the warehouses and larger truck garages was a 15 foot wide, full height band of board and batten siding with the balance of the flanking wall space covered in the traditional "v" rustic (flush shiplap) siding. In the field, however, the board and batten detail was reversed to a channel siding (see Figure 2). Other common elements were open eaves and wood frame divided

light windows (the moveable sash could be casement or hopper on service buildings, casement and double hung on combination barracks, and predominately double hung on residences). Screened entry porches recessed under the principal roof were incorporated into office, residence, and combination barracks floor plans.

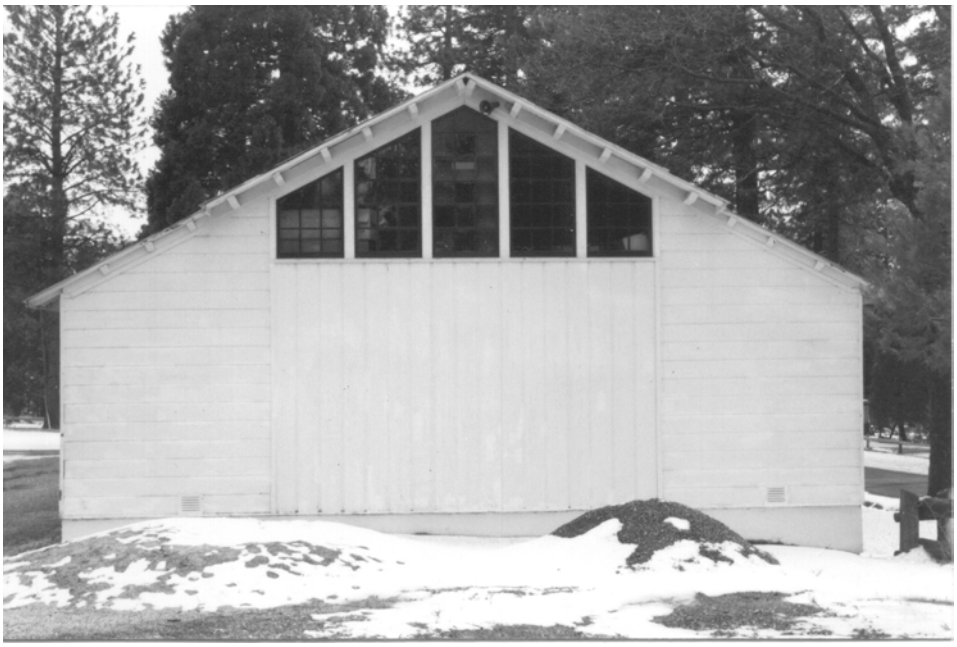

Figure 2: Gable end channel siding treatment.

President Roosevelt's Public Works Administration (PWA) and Works Progress Administration (WPA) were but two more methods used in the 1930s to combat the Great Depression. Through the WPA much work was accomplished for the CDF. (The CCC program could be said to have employed laborers while the WPA program was putting professionals such as architects and engineers to work.) In the waning years of the CCC program several State suppression stations were built using plans drawn by the State Division of Architect under WPA funding. While wood construction was the mainstay for both the Forest Service and the CDF, several significant departures came about at this time. In 1939 an adobe building which housed a barracks, kitchen, messhall, and truck garage was erected in Tulare County at the Fountain Springs Suppression Station site. The building was designed by the State Division of Architect. Several years earlier an adobe house, based on a CCC-WPA standardized wood frame ranger's residence design, had been constructed at the Hammond Suppression Station site, also, in Tulare County. A truck garage was erected near the house in 1938 and the combination barracks was completed in 1943. Tulare County had two other State adobe fire stations built. The Milo Suppression Station combination barracks and garage significantly foreshadows post-war suburban residential styles. The other adobe station has been removed. Another State Division of Architect drawn adobe station complex was constructed in 1943-44 near Carmel in Monterey County.

The use of natural rock first appeared in 1934 at the Cuyamaca Suppression Station in Southern California. However, this reflected the fact that the facility was inside the newly established

Cuyamaca State Park. Buildings constructed during the CCC era that were inside parks (State or Federal) generally were "rusticated" to blend in with the "park ambience." However, two other stone fire stations were erected in Southern California outside of park land. The attractive West Riverside Suppression Station still survives. The influences of Craftsman-Bungalow, California Ranch, and/or Spanish Revival could be seen in many of these and other State Division of Architect working plans that were produced in the late 1930s and early 1940s.

As mentioned, landscape architects were also involved in the CCC planning process. Generally, the goal was to build compounds that harmonized with the surrounding topography and natural vegetation. The layout for the State suppression stations included a combination barracks, truck garage, gas house, and well pump house. The "combination barracks" included sleeping quarters, bath, laundry, kitchen, and dining (messhall) areas. It was customary to have a "cook's quarters" next to the kitchen. Truck garages had either one or two vehicle bays and one or two storerooms. The gas house (or gas and oil house) consisted of a small rectangular building with roof overhang to shelter the adjoining service island. Most of these were one-pump installations. The pump was either a small direct feed or gravity feed (glass tower) hand pump. Single family ranger's residences were found at most suppression stations and at the ranger unit headquarters. A detached one or two car garage with storage room accompanied the house.

The ranger unit compound generally consisted of one or more residences, a combination barracks, ranger's office, warehouse, a 5-bay to 8-bay equipment shed, and an automotive repair shop. Gas and oil houses and well pump houses, along with additional storage buildings rounded out the complement of facilities. Another common feature of the headquarters compound was a walk-in cooler located by the combination barracks or by the kitchen-messhall if the fire crew sleeping quarters were separately housed. Occasionally water "tank houses" (enclosed water towers) were erected at headquarters and/or suppression station sites. The tobacco brown paint subscribed by the Forest Service was also used by the CDF at the stations in the woods. Installations located in open range, brush country, and other non timbered environments were painted white with green trim.

In addition to the adobe and stone buildings, the CDF began to try other ideas in building design and station layout. The combination barracks had been the norm during the CCC era but in 1943 three CDF stations were established with separate barracks and kitchen-messhall buildings. This practice continued after the War. The CDF also experimented with standardized "military surplus" buildings. The rectangular steel frame metal clad buildings were reportedly used in the Pacific Theater during the War. The Army shipped the material back home and the State began acquiring these buildings in 1945. By 1953 some three dozen locations in the CDF system had received a surplus building. The ones that have survived to today have been included in this report. The buildings are all 20 feet wide and vary from 48 to 88 feet in length.

Two of the longer ones originally had truck garages incorporated at one end of the building. In fact this business of combining the combination barracks with the truck garage seems to have retained a degree of favor with the CDF engineers for some time. (Of course California single family homes have commonly featured attached garages since World War II.)

After the War the CDF developed its own engineering and architectural staff and this staff set about drawing up plans for new lookouts to augment the existing detection network and for new buildings to complete the suppression station network. Old inventory records indicate that some

of the suppression camps founded in the 1930s consisted of wood platforms with canvas walls and roofs. The close of the ECW programs left the CDF with a number of unfinished and unimproved sites. This problem was soon taken care of during the economic boom of the 1950s. The commencement of the honor camp system aided in this process. One aspect of this program was the advent of a brick making plant at the Fort Millerton Fire Control Station. Youth Authority wards made the bricks and many attractive "Millerton brick" buildings were erected throughout central California from about 1948 until the early 1960s.

The suppression camps of the 1930s became known as suppression stations. After the War they were renamed fire control stations an appellation they retained until the 1960s when they became forest fire stations. During the years since the CCC program several policy changes and technological developments have equated into significant changes in the appearance of the pre-1946 building collection. In the 1960s asbestos cement tiles were introduced to cover up the weathered V rustic siding. During this decade the original wood garage doors started being replaced with overhead sectional fiberglass doors (aluminum doors became standard replacement issue after the 1960s). Internal electrical wiring was identified as a safety hazard and upgrading commenced in the 1970s. With the introduction of HVAC systems, the screened fenestration of the CCC porches were glazed and the wood stoves or fireplaces rendered non-essential. The energy crisis of the early 1970s paved the way for more remodeling which included insulation, new windows, and solar water heating systems. Plumbing in general was upgraded and in many situations auxiliary utility closets were constructed on the rear or side elevations. As for the wood shingle roofs, asphalt composition shingles are the standard today. Many buildings have also lost their "v" rustic siding as plywood paneling or pressed hardboard has been substituted.

Revisions in building codes have been one influence on the changing condition of the pre-1946 building collection but other policies have also had an impact. Most of the truck garage storerooms have been converted to station offices reflecting the coming of "paperwork" for the station captains. The era of free housing and no property taxes ended during the 1960s. Since then the State has levied rental fees on the ranger's residences and other houses. A slow process to ratchet the rates up to reflect market value has resulted in most of the residences being vacated. The houses have either been converted to office use or demolished. Unionization of the CDF labor force brought about the end of the station cook system. (This historian can personally attest to the quality of food those folks use to serve.) Actually, the hiring of cooks to feed fire crews was already on a steady decline by this time (the Forest Service preceded the CDF in dropping the program). The old "cook's quarters" have usually been converted to pantry, storage, or office space.

Another change to impact the 6-men, 8-men, and 12-men barracks buildings was the advent of the female firefighter. These old buildings were obviously not designed for the co-ed environment. Internal remodeling, partition construction, and room additions are but a few of the actions that have taken place over the past 15 years to address this new era. Another management dilemma affecting CDF's ability to keep historic truck garages functional is the fact that many of these are not large enough to house a modern piece of apparatus (see Figure 3).

Figure 3: Another problem is clearance for newer fire engines through older doorways. A modern four-wheel drive truck wouldn't fit into the above garage.

Still other factors, including budget constraints, accidents, and the law of entropy, have impacted the pre-1946 building collection. The net result is that many of the CCC era buildings are gone, most of the survivors have been altered. There are, however, a few good examples left in the CDF property inventory. These specimens provide us with a vivid look into the past, and an opportunity to pay our respects to the accomplishments of our predecessors. It remains to be seen how many of these buildings will make it to the next century.

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